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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/069,962	03/08/2002	Mitsuhiro Shimozawa	22167US2PCT	7224

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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER

NGUYEN, THUAN T

ART UNIT	PAPER NUMBER
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2685

4  
DATE MAILED: 08/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/069,962

Applicant(s)

SHIMOZAWA ET AL.

Examiner

THUAN T. NGUYEN

Art Unit

2685

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

Art Unit: 2685

## DETAILED ACTION

### *Priority*

1. Should applicant desire to obtain the benefit of foreign priority under 35 U.S.C. 119(a)-(d) prior to declaration of an interference, a translation of the foreign application should be submitted under 37 CFR 1.55 in reply to this action.

### ***Claim Rejections - 35 USC 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

*A person shall be entitled to a patent unless --*

*(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.*

3. Claims 1-8 are rejected under 35 U.S.C. 102(a) as being anticipated by Tanaka (EP No. 1300827 A1).

Regarding claim 1, Tanaka discloses "an even harmonic mixer comprising: an antiparallel diode pair means including a first series unit in which a first diode and a first resistor are connected in series and a second series unit in which a second diode and a second resistor are connected in series, said first and second series units being connected in parallel so that said first and second diodes are opposite in polarity" (col. 30, claim 1).

As for claim 2, in view of claim 1, Tanaka discloses "wherein said first series unit has a plurality of diodes in series which are connected in series to said first resistor and which includes said first diode, and said second series unit has a plurality of diodes in series which are

Art Unit: 2685

connected in series to said second resistor and which includes said second diode" (col. 30, claim 2).

As for claim 3, Tanaka discloses "wherein said first series unit has a first capacitor connected in parallel to said first resistor and said second series unit has a second capacitor connected in parallel to said second resistor" (col. 30, claim 3).

As for claim 4, "wherein said first resistor is connected to a cathode of said first diode in said first series unit and said second resistor is connected to an anode of said second diode in said second series unit so that said first and second resistors are connected to each other at an end of said antiparallel diode pair means, and wherein said even harmonic mixer comprises a first capacitor having an end connected to a node between said first resistor and said first diode and a second capacitor having an end connected to a node between said second resistor and said second diode, an IF signal is input and output by way of a node between said first and second resistors, other ends of said first and second capacitors are connected to each other, an LO wave is applied to anode between the other ends of said first and second capacitors, and an RF signal is input and output by way of the node between the other ends of said first and second capacitors" (col. 30-31, claim 4).

As for claim 5, Tanaka discloses "wherein said first resistor is connected to a cathode of said first diode in said first series unit and said second resistor is connected to an anode of said second diode in said second series unit so that said first and second resistors are connected to each other at an end of said antiparallel diode pair means, and wherein said even harmonic mixer comprises a third capacitor having an end connected to a node between said first resistor and said first diode and a fourth capacitor having an end connected to a node between said second resistor and said second diode, an i IF signal is input and output by way of a node between said first and second resistors, other ends of said third and fourth capacitors are

Art Unit: 2685

connected to each other, an LO wave is applied to anode between the other ends of said third and fourth capacitors, and an RF signal is input and output by way of the node between the other ends of said third and fourth capacitors" (col. 31, claim 5).

As for claim 6, Tanaka discloses "wherein said first resistor is connected to a cathode of said first diode in said first series unit and said second resistor is connected to an anode of said second diode in said second series unit so that said first and second resistors are connected to each other at an end of said antiparallel diode pair means, and said first series unit comprises a first capacitor connected to an anode of said first diode and said second series unit comprises a second capacitor connected to a cathode of said second diode, and wherein said even harmonic mixer comprises a third resistor having an end connected to the anode of said first diode, a fourth resistor having an end connected to the cathode of said second diode and another end connected to another end of said third resistor, a third capacitor having an end connected to a node between said first resistor and said first diode, and a fourth capacitor having an end connected to a node between said second resistor and said second diode, an IF signal is input and output by way of a node between said first and second resistors, other ends of said third and fourth capacitors are connected to each other, an LO wave is applied to a node between the other ends of said third and fourth capacitors, and an RF signal is input and output by way of the node between the other ends of said third and fourth capacitors" (col. 31, claim 6).

As for claim 7, Tanaka discloses "wherein said first resistor is connected to a cathode of said first diode in said first series unit and said second resistor is connected to an anode of said second diode in said second series unit so that said first and second resistors are connected to each other at an end of said antiparallel diode pair means, and said first series unit comprises a third resistor connected in series to an anode of said first diode and a first capacitor connected in parallel to said third resistor and said second series unit comprises a fourth resistor

Art Unit: 2685

connected in series to a cathode of said second diode and a second capacitor connected in parallel to said fourth resistor, and wherein said even harmonic mixer comprises a third capacitor having an end connected to a node between said first resistor and said first diode and a fourth capacitor having an end connected to a node between said second resistor and said second diode, an IF signal is input and output by way of a node between said first and second resistors, other ends of said third and fourth capacitors are connected to each other, an LO wave is applied to a node between the other ends of said third and fourth capacitors, and an RF signal is input and output by way of the node between the other ends of said third and fourth capacitors" (col. 31-32, claim 7).

As for claim 8, Tanaka discloses "wherein said first resistor is connected to a cathode of said first diode in said first series unit and said second resistor is connected to an anode of said second diode in said second series unit so that said first and second resistors are connected to each other at an end of said antiparallel diode pair means, and said first series unit comprises a third capacitor connected in series to an anode of said first diode and said second series unit comprises a fourth capacitor connected in series to a cathode of said second diode, and wherein said even harmonic mixer comprises a third resistor having an end connected to the anode of said first diode and a fourth resistor having an end connected to the cathode of said second diode and another end connected to another end of said third resistor" (col. 32, claim 8).

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Tanbakuchi (US Patents 5,553,319 & 5,465,417), Itoh et al. (US Patent 5,787,126) and Yamaji et al. (US Patent 5,995,819) disclose systems related to an even harmonic mixer.

Art Unit: 2685

5. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231


**or faxed to:**

**(703) 872-9306, (for Technology Center 2600 only)**

*Hand-delivered responses should be brought to Crystal Park II,  
2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).*

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Thuan Nguyen whose telephone number is (703) 308-5860. The examiner can normally be reached on Monday-Friday from 9:30 AM to 7:00 PM, with alternate Fridays off.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the **Technology Center 2600 Customer Service Office** whose telephone number is **(703) 306-0377**.

  
**TONY T. NGUYEN**  
**PATENT EXAMINER** *PSA*

Tony T. Nguyen  
Art Unit 2685  
August 6, 2004